

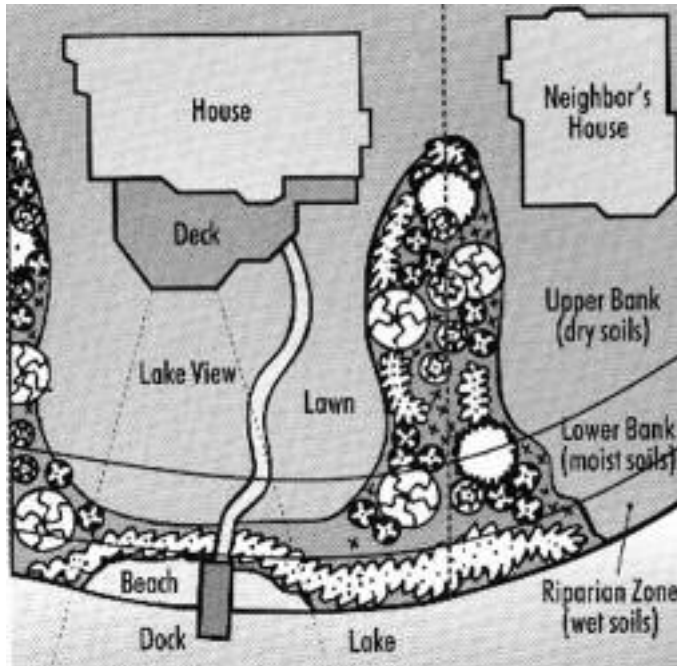
Chapter 4



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Actions You Can Take to Protect Your Lake

Ecological Landscaping



If you reside on lakefront property, use environmentally friendly landscaping techniques to prevent sedimentation and pollution.

- If possible, build homes where the land has the gentlest slope.
- Leave as much vegetation on slopes as possible to reduce the velocity of storm water runoff and to filter out sediments.
- Create the largest possible buffer along the shoreline (a minimum of 30' is recommended) by leaving existing vegetation and rocks and planting small shrubs. This buffer will reduce the effects of storm water runoff and erosion from waves and deter geese from the lawn, while still providing a view of the lake.
- Develop a winding dirt path to your shore or dock. The reduced slope of a winding dirt path generates less erosion and runoff than a steep paved path.
- Do not add sand to your beach area; introduced sand is a major source of sediments and phosphorus.
- If you plan to do construction in an area where the soil will be left unprotected, use hay bales and fabric fences to hold the soil in place, and mulch disturbed areas just prior to the final grading.
- Improve your driveway so that storm water is diverted through u-shaped gravel or vegetated ditches that are designed to filter sediments and nutrients.
- Work with your town to improve drainage from town roads and parking lots.
- Direct runoff towards wooded areas so sediments, toxins and nutrients can be filtered out.
- Work towards a goal of zero runoff from your property.

Select Native Plants

Native plants are ideal for landscaping lakeshore homes, and are often more disease resistant and hardier than their exotic counterparts, thus require less pesticide and fertilizer. Many native plants are a good source of food for wildlife and will enhance bird watching. Refer to the comprehensive Massachusetts Buffer Manual for directions on creating ideal buffers, and for information on landscaping with native plants contact the New England Wildflower Society (see page 47).

Exotic Species	Native Alternatives
Aquarium Plants Fanwort (<i>Cabomba caroliniana</i>) Eurasian Milfoil (<i>Myriophyllum spicatum</i>) Variable Milfoil (<i>Myriophyllum heterophyllum</i>) S. American Waterweed (<i>Egeria densa</i>) Hydrilla (<i>Hydrilla verticillata</i>)	Aquatic Plants Water Buttercup (<i>Ranunculus</i>) Water Marigold (<i>Megalodonta</i>) Coontail (<i>Ceratophyllum</i>) Common Waterweed (<i>Elodea</i>)
Water Garden Plants Purple Loosestrife (<i>Lythrum salicaria</i>) Curly-leaved Pondweed (<i>Potamogeton crispus</i>) Parrot Feather (<i>Myriophyllum aquaticum</i>) Water Hyacinth (<i>Eichhorina crassipes</i>) Frog's Bit (<i>Limnobiium spongia</i>) Yellow Floating Heart (<i>Nymphoides peltata</i>) Yellow Iris (<i>Iris pseudacorus</i>)	Wetland Plants White Water Lily (<i>Nymphaea odorata</i>) Pickerelweed (<i>Pontederia cordata</i>) Swamp Loosestrife (<i>Decodon verticillatus</i>) Swampweed (<i>Polygonum</i>) Cattail (<i>Typha</i>) Arrowhead (<i>Sagittaria</i>) Blue Flag (<i>Iris virginica</i>)

Caution!

- Many species, native or non-native, can become invasive when they are released into a water body. Never dispose of aquarium or water garden plants or animals into a water body.
- Unwanted aquatic plants should be disposed of in the trash and unwanted aquarium water emptied down the toilet. Anglers should not release live bait fish or bait bucket water into a lake or pond.
- Use caution when selecting plants because suppliers often advertise species incorrectly or by alternate names. For example, Variable Milfoil is often sold as Foxtail and South American Waterweed is frequently displayed under the names *Anacharis* or *Elodea*. Bring a guide with you to the store for accurate identification. (A Guide to Selected Non-native Aquatic Species in Massachusetts is available free of charge through DCR. See Page 46)
- Thoroughly inspect each new addition to your aquarium or water garden. Exotic species such as Hydrilla frequently hitch rides on innocuous native plants.
- For information on where to return unwanted aquarium animals contact the Coastal Zone Management Office. Some pet stores will allow you to return your pet. You can donate your pet to a public place (school, nature museum, nursing home etc.) or give your pet to a friend, family or neighbor. For CZM contact information see page 45.

Reduce Phosphorus

Reduce the level of phosphorus that is released into the watershed and/or lake. Massachusetts has taken action and recently passed the Massachusetts Phosphate Bill (GML Chapter 111 Sec. 5R). The law prohibits the sale of any household cleaning products with a concentration of greater than 0.5% by weight. However, there are additional actions you can take to reduce phosphorus:

- Perform a lawn test in the spring to determine if fertilizer is needed, before applying. For information visit: www.umass.edu/plsoils/soi
- Do not fertilize prior to or just after any precipitation because storm water runoff may carry the phosphorus to nearby water bodies, and like your lawn, it fuels plant growth.
- Select plants that require little fertilization and spot treat with liquid fertilizer only as needed.
- Use products that are organic, have no phosphates or have only slow release phosphorous. To determine the phosphorus content in the fertilizer, read the middle number in the formula on the package. For example: **16 4 8**. Four is the phosphorus content.

Maintain Your Septic Tank

- Conserve water and reduce the burden on your septic system by fixing leaking faucets.
- Choose commercial drain cleaners carefully as many may be harmful to the groundwater and to your leach field.
- Monitor the levels of sludge in the septic system and have the tank cleaned when it reaches half full. When septic systems are not pumped routinely, the leach field may become clogged.
- Bleach, drain cleaners, chemicals, and paints harm beneficial microorganisms in the septic system. Paper towels, cigarettes and garbage disposal debris should never be flushed as these products can overload the septic system.

Reduce Hazardous Materials

Consumer products such as paints, paint thinners, solvents, batteries, and household cleaning products are hazardous materials and need to be disposed of properly. Many of these products may be a health hazard once released into the environment, and may remain there for many years.

- Seek alternatives to hazardous cleaning products and reduce the use of heavy metals.
- Store hazardous materials in approved containers, in a safe location, and check for leaks.
- Never dispose of oil or gasoline on your driveway or street. Many gas stations recycle batteries and oil. Used motor oil is the major source of oil pollution in the aquatic system.
- Dispose of solvents and paint thinners responsibly because these products are toxic to the environment and are not biodegradable. Watch for a Hazardous Waste Disposal Day or encourage your town to hold one. Return materials to a Department of Environmental Protection facility (see page 46).
- Mercury is very toxic and exposure can cause hearing, memory or vision loss, paralysis, psychological effects, kidney problems and at high doses, death. Mercury can cause congenital malformations and pregnant women can pass mercury along to their child after eating contaminated fish. If you own a mercury thermometer, learn about disposal and trade-in options. (see contacts on back inside cover)

Reduce the Use of Pesticides

Although environmentally persistent pesticides of the past, such as DDT have been banned, there are still over 700 EPA registered pesticides available for use nationwide. Many are approved for use in Massachusetts, although only six active ingredients are approved for use in MA water bodies. If these, or any chemical, is improperly handled or used, there is the potential to damage non-target organisms.

To protect peoples' health and our environmental resources, the state requires the testing and registration of all pesticides and the licensing of all pesticide applicators. For lake and pond use, each application of a herbicide must be approved by a conservation commission.

There are a variety of pesticides on the market today including; rodenticides, fungicides, herbicides, insecticides and disinfectants, and although many of these products serve beneficial purposes, they can inadvertently end up in our environment. Most of these chemicals are associated with agriculture and industry.

According to the National Wildlife Federation, "research indicates that virtually all surface waters in the country contain detectable levels of one or more pesticides." In certain cases the impacts of a pesticide are very apparent, however, there are indirect impacts that may occur undetected.

For instance, some copper-based algacides or fungicides can block the olfactory system in certain species of salmon, reducing their ability to avoid predation, migrate, and time their spawning, thus ultimately impacting the population. Pesticides often impact non-target organisms including beneficial insects (bees, spiders etc) that are invaluable pollinators or natural pest controllers.

Despite some negative impacts associated with some pesticides, there may be no feasible alternative to their use, particularly in the case of non-

native species. To minimize harm to the environment follow the guidelines below.

If you must use pesticides

- Select and use the products for the specific purpose they are intended; use the minimum dose; and be sure to store or dispose of remaining product appropriately.
- Try to identify the pest and use only a product specifically designed for that species.
- Refrain from using pesticides prior to, during or shortly after a storm.
- Do not discard left over pesticides down drains or on the ground; empty containers are often still an environmental hazard. Visit your nearest DEP facility to return containers.
- Rake as little as possible because leaf litter will help to soak up excess chemicals

Alternatives to Pesticides

Reducing the use of household and yard chemicals can help prevent them from entering into our lakes and ponds.

- Marigolds help repel asparagus beetles.
- Pour beer or vinegar in a shallow pan to attract and trap snails and slugs.
- Bacterial spray can be used to kill gypsy moths during their larval stage.
- Cockroaches can be removed with a 1:1 powdered sugar and boric acid mix sprinkled along baseboards and in corners. Make sure that no water is available for the cockroaches to drink.
- Remove or replace rotting wood, as this is an attractant for carpenter ants and termites.
- Always keep counter tops very clean and store food carefully.
- Enhance your backyard so that wild birds and other insect eating animals take up residence.
- Do not leave standing pools of stagnant water as this creates a breeding ground for mosquitoes.

Conserve Water

- Bring your vehicle to a car wash rather than cleaning it in the driveway. Carwashes usually use up to 60% less water and most recycle their water. The average driveway car wash uses over 16 gallons of water and the detergents can end up in storm drains and ultimately in a lake or pond.
- Select native plants and grasses when landscaping. Most native species are hardier and require less water. Grasses that are labeled insect resistant and have a high percent of fescues are usually fairly drought resistant.
- Mulch heavily to keep plants cool and lock moisture in.
- Only water the lawn when it is necessary. (If you walk across the lawn and you leave lingering footprints then it is time to water.) Most traditional lawns require 1 inch of water per week, so if adequate rain has fallen, no hand watering is necessary.
- Keep blades sharp and cut grass high (2.5 inches) as this will keep the roots shaded.
- Water slowly to prevent runoff, and at night, to prevent loss of water through evaporation.
- Collect rainfall in rain barrels for use in watering the garden.



Sky Juice Rainbarrel System

Adding a few drops of baby oil to the barrel will prevent mosquitoes from breeding.

- Cover swimming pools to prevent water loss through evaporation and recycle water from kids wading pools.



Washington Department of Ecology

- Reduce the amount of water you use. Small changes in daily habits including shortening showers, only running full loads of dishes or laundry and flushing less frequently, can greatly reduce daily consumption of water.
- Install low flow showerheads and low flush toilets. As a temporary fix, sink weighted water-filled plastic bottles, into the tank of the toilet. The water displaced by the bottles will be conserved with each flush.
- Keep cold water in a bottle in the fridge to prevent water lost while you are waiting for the tap water to run cold. Conversely, keep water pipes insulated to prevent water lost while you are waiting for the water to run hot (saves energy also).
- Check all faucets and pipes annually for leaks.
- When selecting new household appliances select the brand that uses the least water per pounds of wash (and the least energy).

Start a Lake Group

If you live on or near a lake, starting a lake group is a good first step towards protecting your lake's future and resolving problems that maybe threatening your lake's health. Although one person working alone can make a difference, a group of people with similar concerns and interests have a much larger voice and can have a greater impact. Members of a lake association meet to discuss lake issues and determine courses of action to protect their lake. You and your neighbors can:

- Attend town meetings to be a voice for your lake,
- Apply for grants to protect or improve your lake,
- Monitor your lake or pond for invasive species and check water quality,
- Work with the towns to address watershed issues including increased cleaning of storm drains, implementing new storm water control techniques,
- Work with planning boards to reduce the impact of increasing development,
- Attend workshops to gain more knowledge about lake ecology, hydrology etc., and
- Hold training workshops to educate the community about lake and watershed issues



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The Congress of Lakes and Ponds (COLAP) is an organization that provides guidance to lake and pond associations. They can assist you in developing an association and provide opportunities for training, networking and support. Visit the COLAP website: www.colap.com

Other Guidance Material:

• ***Starting a Lake Association*** To request a brochure (free) contact UW-Extension, Lakes Management Program, College of Natural

Resources, Un. of Wisconsin, Stevens Point WI 54481 or call 715-346-2116

• ***Citizen Monitoring***

To order send \$5.00 to NALMS P.O. Box 5443 Madison, WI 53705 or call 608-233-2836 www.nalms.org

• ***Handling Conflicts on Your Lake*** Write Ecovision Associates 76 E. Sherwood Road,

Williamstown, MI 48895-9435 or call 517-347-2652

• ***Your Lake and You*** NALMS PO Box 5443 Madison, WI 53705 5443 email:nalms@nalms.org or visit the web at www.nalms.org

• ***Lake Line*** NALMS PO Box 5443 Madison, WI 53705 5443 email:nalms@nalms.org or visit the web at www.nalms.org

• ***Managing Lakes & Reservoirs*** NALMS PO Box 5443 Madison, WI 53705 5443 email:nalms@nalms.org or visit the web at www.nalms.org

Funds for Your Lake

A number of sources for funding are available to help you identify lake problems and obtain assistance in fixing them.

Department of Environmental Protection Grants

319 Nonpoint Source Grant Program

This grant program focuses on projects that implement measures that address the prevention, control and abatement of non-point source pollution; target the major source(s) of nonpoint source pollution within a watershed/subwatershed; have a 40 percent non-federal match of the total project cost; contain an appropriate method for evaluating the project results; address activities that are identified in the Massachusetts NPS Management Program Plan.

- RFR: typically issued by the DEP each February.

- Who Can Apply?: Any interested Massachusetts public or private organization.

- Contact: Department of Environmental Protection, 627 Main St. Worcester, MA 01608
www.mass.gov/dep/dephome.htm

Source Water Protection Technical Assistance/Land Management Grant Program

This grant provides funds to third party technical assistance organizations that assist public water suppliers in protecting local and regional

ground and surface drinking water supplies.

- RFR: issued each program year.
- Who Can Apply?: Organizations that have experience providing technical assistance related to drinking water protection.
- Information available at:

www.state.ma.us/dep/brp/dws/dwspubs.htm or
www.comm-pass.com

Department of Fish and Game

Riverways Small Grants Program

Projects that advance river and/or stream and/or riparian land protection and/or restoration are available.

- Who Can Apply?: Municipalities and non-profit organizations such as land trusts and watershed associations are eligible.

- Contact: www.state.ma.us/dfwe/river/rivsmallgrnts.htm

Massachusetts Water Watch Program

The Massachusetts Water Watch Partnership (MassWWP) provides training and other technical assistance to citizen organizations who conduct water quality monitoring programs on the lakes, rivers, and estuaries of Massachusetts.

For information visit:
<http://www.umass.edu/tei/mwwp/>



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